WHAT IS CLAIMED IS:

1. A mobile communication terminal apparatus to communicate with a transmitting station together with other terminal apparatuses, comprising:

an antenna unit configured to select at least one of a plurality of antenna radiation characteristics different from one another, and receive a signal transmitted from the transmitting station according to the selected one of the antenna radiation characteristics, to generate a first signal;

a transmitter which transmits a detection signal to the other terminal apparatuses, the designation signal generated from the first signal, for designating the antenna radiation characteristics;

a first receiver which receives another designation signal from the other terminal apparatuses;

a controller which controls the antenna unit to obtain the antenna radiation characteristic designated by the another designation signal;

a second receiver which receives a second signal that is transferred from one of the other terminal apparatuses and is obtained by the antenna radiation characteristics selected by the other terminal apparatuses; and

a processor which processes the second signal and the detection signal in a diversity scheme.

2. The terminal apparatus according to claim 1,

further comprising a second transmitter which transmits the detection signal as the second signal when the antenna unit has the antenna radiation characteristic designated by the another designation signal.

3. The terminal apparatus according to claim 1, wherein the controller controls the antenna unit to select one of the plurality of antenna radiation characteristics designated under given conditions and sets the selected antenna radiation characteristic at the antenna unit, when there are a plurality of antenna radiation characteristics designated by the designation signal.

4. The terminal apparatus according to claim 1, wherein the antenna unit comprises:

a plurality of antenna devices;

a selection device configured to select at least one of the plurality of antenna devices as a selected antenna device; and

a change device configured to change the selected antenna device to change over the antenna radiation characteristics.

5. The terminal apparatus according to claim 1, wherein the antenna unit comprises:

a plurality of antenna devices;

a phase shifter which shifts a phase of output signals of the plurality of antenna devices to output a phase shift signal;

a synthesizer which synthesizes the phase shift signal; and

a change device configured to change an amount of the phase shift of the phase shifter to change over the antenna radiation characteristics.

6. The terminal apparatus according to claim 1, wherein the antenna unit comprises:

an antenna device;

a passive element arranged in close vicinity of the antenna device;

a variable terminal element connected to the passive element; and

a change device configured to change a value of the variable terminal element to change over the antenna radiation characteristics.

7. A mobile communication terminal apparatus to communicate with a transmitting station together with other terminal apparatuses, comprising:

an antenna unit configured to select at least one of a plurality of antenna radiation characteristics different from one another, and receive a signal transmitted from the transmitting station according to the selected one of the antenna radiation characteristics, to generate a first signal;

a wave detector which detects the first signal to output a detection signal;

a receiver which receives a signal which is

transmitted from the other terminal apparatuses and represents the detection signal, to generate a reference signal;

an operator which operates a correlation value between the reference signal, and the detection signal of the selected antenna radiation characteristic at the time of selecting the antenna radiation characteristic;

a determination device configured to determine first antenna radiation characteristics of the other terminal apparatuses and second antenna radiation characteristics to be set at the antenna unit, based on the correlation value;

a first transmitter which transmits a designation signal for designating the first antenna radiation characteristics, to the other terminal apparatuses;

a controller which controls the antenna unit to obtain the second antenna radiation characteristics; and

a second transmitter which transmits the detection signal to the other terminal apparatuses, when the antenna unit has the second antenna radiation characteristics.

8. The terminal apparatus according to claim 7, wherein the determination device determines the plurality of antenna radiation characteristics as the first antenna radiation characteristic and the second antenna radiation characteristics, when there are a

plurality of antenna radiation characteristics satisfying a given first condition; and

the controller controls the antenna unit to select one of the plurality of second antenna radiation characteristics under a second condition different from the first condition, and sets the selected second antenna radiation characteristic at the antenna unit, when there are a plurality of second antenna radiation characteristics.

9. The terminal apparatus according to claim 7, further comprising:

a second receiver which receives a signal transmitted from the other terminal apparatuses without passing through the transmitting station and obtained by the antenna radiation characteristics selected by the other terminal apparatuses, to generate a second signal; and

a processor which processes the second signal and the detection signal in a diversity scheme.

10. The terminal apparatus according to claim 7, wherein the antenna unit comprises:

a plurality of antenna devices;

a selection device configured to select at least one of the plurality of antenna devices as a selected antenna device; and

a change device configured to change the selected antenna device to change over the antenna radiation

characteristics.

11. The terminal apparatus according to claim 7, wherein the antenna unit comprises:

a plurality of antenna devices;

a phase shifter which shifts phase of output signals of the plurality of antenna devices, to output a phase shift signal;

a synthesizer which synthesizes the phase shift signal; and

a change device configured to change an amount of the phase shift of the phase shifter to change over the antenna radiation characteristics.

12. The terminal apparatus according to claim 7, wherein the antenna unit comprises:

an antenna device;

a passive element arranged in close vicinity of the antenna device;

a variable terminal element connected to the passive element; and

a change device configured to change a value of the variable terminal element to change over the antenna radiation characteristics.

13. A mobile communication method comprising:

receiving a signal transmitted from a transmitting station by an antenna unit that selects at least one of a plurality of antenna radiation characteristics different from each other, to obtain a first signal;

detecting the first signal to output a detection signal;

transmitting the detection signal to other terminals as a designation signal to designate the antenna radiation characteristic at the time of selecting the antenna radiation characteristics;

receiving another designation signal from the other terminal apparatuses;

controlling the antenna unit to obtain the antenna radiation characteristics designated by the another designation signal;

receiving a second signal that is transferred from the other terminal apparatuses and is obtained by the antenna radiation characteristics selected by the other terminal apparatuses; and

processing the second signal and the detection signal in a diversity scheme.

14. The method according to claim 13, further comprising

transmitting the detection signal as the second signal when the antenna unit has the antenna radiation characteristics designated by the another designation signal.

15. The method according to claim 13, wherein the controlling includes controlling the antenna unit to select one of the plurality of antenna radiation characteristics designated under given conditions and

setting the selected antenna radiation characteristic at the antenna unit, when there are a plurality of antenna radiation characteristics designated by the designation signal.

16. A mobile communication method comprising:

receiving a first signal transmitted from a transmitting station by an antenna unit that selects at least one of a plurality of antenna radiation characteristics different from one another;

detecting the first signal to output a detection signal;

receiving a reference signal which is transmitted from other terminals and represents the detection signal;

operating a correlation value between the reference signal, and the detection signal of the selected antenna radiation characteristics at the time of changing the antenna radiation characteristic;

determining first antenna radiation characteristics of the other terminal apparatuses and second antenna radiation characteristics to be set at the antenna unit, based on the correlation value;

transmitting a designation signal to designate the first antenna radiation characteristics, to the other terminal apparatuses;

controlling the antenna unit to obtain the second antenna radiation characteristics; and

transmitting the detection signal to the other terminal apparatuses, when the antenna unit has the second antenna radiation characteristics.

17. The method according to claim 16, wherein the determining includes determining the plurality of antenna radiation characteristics as first antenna radiation characteristic and second antenna radiation characteristics, when there are a plurality of antenna radiation characteristics satisfying a given first condition; and

the controlling includes controlling the antenna unit to select one of the plurality of second antenna radiation characteristics under a second condition, and setting the selected second antenna radiation characteristic at the antenna unit, when there are a plurality of second antenna radiation characteristics.

18. The method according to claim 16, further comprising:

receiving a second signal transmitted from the other terminals without passing through the transmitting station and obtained by the antenna radiation characteristics selected by the other terminal apparatuses; and

processing the second signal and the detection signal in a diversity scheme.